AN ODD CASE OF GYNANDROMORPHISM IN THE EXTERNAL GENITALIA OF BOROS DISCICOLLIS (SALPINGIDAE)

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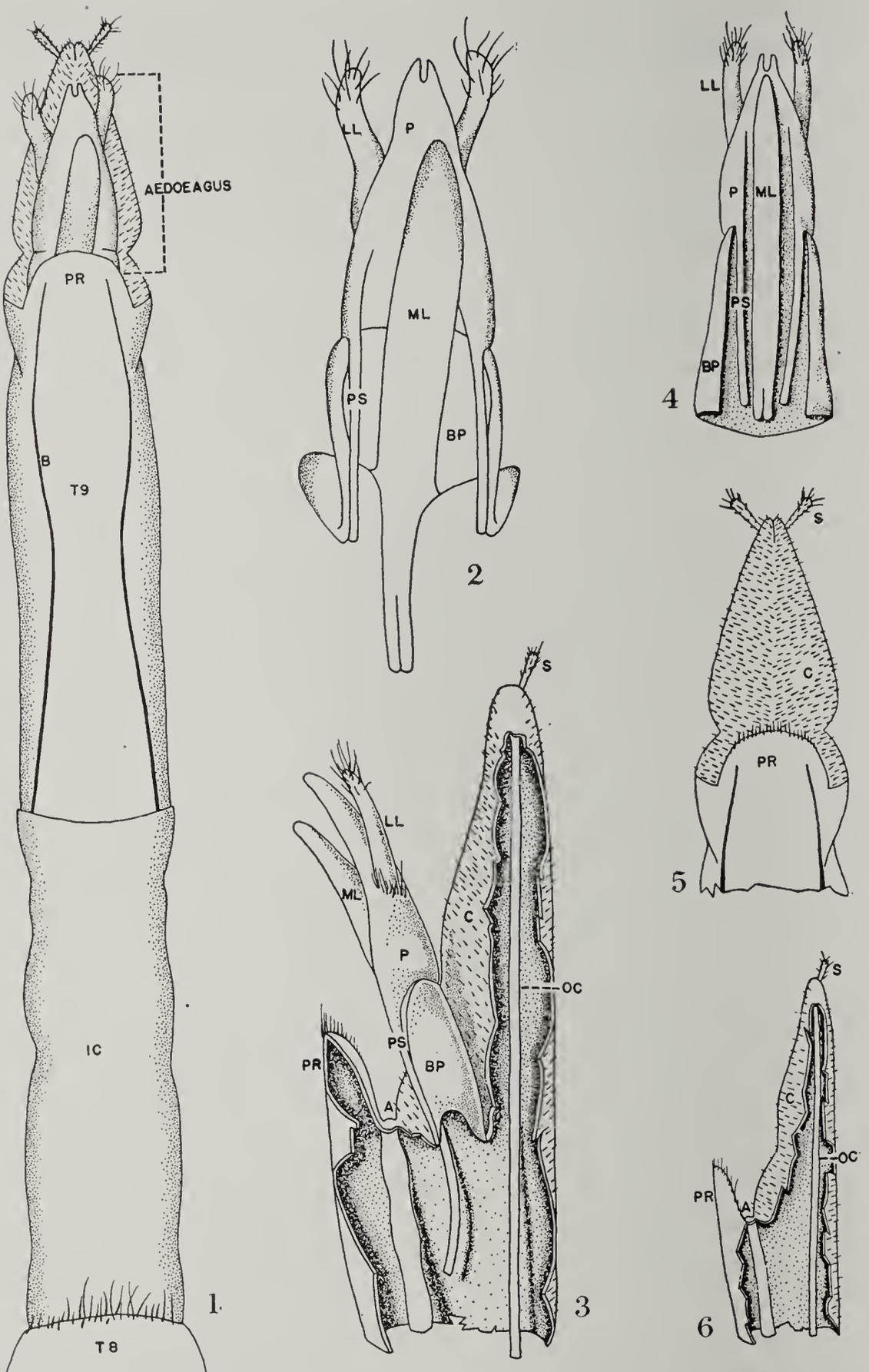
Entomological and genetical literature contain many descriptions of gynandromorphs, most being of Lepidoptera and *Drosophila*. Thus, few accounts of coleopterous gynandromorphs were found in a bibliographic search conducted after finding a bisexual specimen of *Boros* (*Lecontia*) *discicollis* (LeConte), 1850. The specimen was collected at Alton Mill, Mass., and is owned by the Museum of Comparative Zoology at Harvard.

External sexual dimorphism exists in *discicollis* in the form of a pilose area on the prosternum of the female but not the male; the specimen had this female characteristic. It possessed parts of both male and female genitalia, which were extruded in the pinned specimen (fig. 1). These genitalia were removed from the abdomen, treated with caustic potash, and examined. Ovaries, but not testes, were found in the abdomen. The external female genitalia were like the usual type (figs. 5 and 6) in that they possessed perfectly formed segments 8 and 9, the appendages of the latter segment, fused coxites and styli, and the oviductus communis. Of the complete aedoeagus figured by Spilman (1952), the gynandromorph had the basal piece, paramere, and median lobe, but not tegmenite (fig. 2). The basal piece and paramere deviated from the normal type (fig. 4) in being abbreviated and flattened, and the lateral lobes were sinuate. The median lobe, however, was of usual length and projected proximad of the basal piece. On making a lateral longitudinal incision, a complete egg conduit, but no ejaculatory duct, was found (fig. 3). From the morphology of all parts studied, I concluded that this gynandromorph was probably a functional female, with some rudimentary and nonfunctional external male genitalic parts.

As far as I am able to determine, this is the first record of gynandromorphism in the genitalia of a beetle, but the true import of the specimen, realized quite some time after its discovery, is the evidence it furnishes for the derivation of male coleopterous genitalia. To understand this importance we must refer



Normal and gynandromorphic genitalia of *Boros* (*Lecontia*) *discicollis*.

1, Dorso-lateral view of external genitalia of gynandromorph. 2, Dorsal view of aedoeagus of gynandromorph. 3, Lateral cutaway view of apex of gynandromorph. 4, Dorsal view of normal male aedoeagus. 5, Dorsal view of

to two accounts of the derivation of external female genitalia: Singh Pruthi (1924A) on an ontogenetical study of *Tenebrio molitor* L., and Tanner (1927) on a comparative study of the Coleoptera, with *Pytho strictus* LeC. as the salpingid example. Their views on the parts important in this gynandromorph are basically similar. In a typical female, segment 8 is short and unspecialized. Segment 9, according to Tanner, is the membranous tube next distad, and the baculi are its appendages. Singh Pruthi, whose interpretation I have adopted, terms the area containing the baculi segment 9 and the membranous tube the intersegmental connection. Both authors consider the fused coxites to be appendages of segment 9. Tanner interprets the proctiger, a sclerite forming the dorsal lip of the anus, to be tergite 10 and the linear longitudinal sclerite located medially on the ventral side of the fused coxites to be sternite 10. If we follow Tanner's explanation of segment 10, we may deduce that the appendages of sternite 9, the coxites with styli, have migrated dorsad of sternite 10. However, Singh Pruthi was not able to trace the development of the larval segment 10, itself uncertain, to the adult; I have accepted this as evidence that segment 10 is not present in the adult female. Thus, segment 9 is the ultimate segment.

Next we must turn to the work of Singh Pruthi (1924) on the ontogeny of the male *Tenebrio molitor* wherein he demonstrated that the aedoeagus develops from an evagination of the membrane between the anus and sternite 9. The location of the aedoeagus of is absent in the adult male salpingids, the aedoeagus is situated between the anus and sternite 9. The location of the aedoeagus of this adult gynandromorph between the anus and the female appendages of sternite 9, the fused coxites, is held to be additional evidence of the origin of external male genitalia from the membrane between sternites 9 and 10. This, then, is the greatest significance of the gynandromorph. The absence of the tegmenite,

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apex of normal female genitalia. 6, Lateral cutaway view of apex of normal female genitalia.

Legend: A—anus, B—baculum, BP—basal piece, C—coxite, IC—intersegmental connection, LL—lateral lobe, ML—median lobe, OC—oviductus communis, P—paramere, PR—proctiger, PS—parameral strut, S—stylus, T8—tergite 8, T9—tergite 9.

said by Arnett (1951) to be a part of the tegmen, might be an indication of its derivation from a different genitalic part. It should be noted, however, that there is very little space for a tegmenite between the basal piece and coxites.

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CURRENT LITERATURE

Compiled by Ross H. Arnett, Jr.

This section is designed to contain all papers on the Coleoptera of North and South America which are not in the **Catalogue of the Coleoptera of America, North of Mexico** and its supplements, or in the **Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies, and South America** and which have not been previously listed in The Coleopterists' Bulletin.

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